

Appl. No. 09/763,421
Amdt. dated August 8, 2003
Reply to Office action March 10, 2003

REMARKS/ARGUMENTS

Claims 3-5, 9-15, and 19-22 currently appear in this application. The Office Action of April 10, 2003, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicants respectfully request favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Drawings

Figures 22 and 23 should be designated by a legend such as "Prior Art", because only that which is old is illustrated.

Accordingly, submitted herewith are copies of Figures 22 and 23, filed April 29, 2002 in which the term "Prior Art" was added.

Art Rejections

Claims 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Komoto et al. Komoto et al. are said to disclose a light emitting device comprising a lead frame, fluorescent layer, and resin. Two prong-like projections are said to extend from the base and surround the light-emitting device, the projections enclosing the fluorescent layer.

This rejection is respectfully traversed. The present invention provides a light emitting diode in which a recess, or hole, is provided on a top surface of a base, and an inner rim of the recess surrounds a periphery of an adhesive that contains a fluorescent material. The inner rim of the recess ensures that the adhesive not flow out and maintains a predetermined thickness of the adhesive. Claim 32 recites that a recess is provided on a top surface of the base, a plane sphere of the recess is substantially the same as a sphere of a bottom surface of the light emitting diode element, and adhesive is filled into the recess for fixing the light emitting diode element. Claim 33 recites that the recess is constructed by a hole formed in a plate-like top side electrode extending to the position in which the light emitting diode is placed. Additionally, claim 35 recites that the light emitting diode of the present invention can include a plurality of light emitting diode elements which are disposed on and fixed to the top surface of the base by the adhesive.

Thus, according to the present invention, the periphery of the adhesive is surrounded by the inner rim of the recess, and the adhesive is thereby maintained at a predetermined thickness. Therefore, when the adhesive is formed on the base, the inner rim of the recess

prevents the adhesive from flowing away. This ensures a predetermined thickness as well as maintaining a uniform thickness under the entire bottom surface of the light emitting diode element.

The feature of a recess or hole provided on a top surface of a base and the inner rim of the recess surrounds a periphery of an adhesive containing fluorescent material, whereby said inner rim of the recess ensures that the fluorescent material containing layer maintain a predetermined thickness is neither disclosed nor suggested in Komoto. Komoto discloses a light emitting device comprising a lead frame (base) 110, fluorescent layer FL, light emitting element 990, and resin 140, wherein protruded portion extending from the base of the lead frame surrounds the fluorescent layer FL and the light emitting element 990. This construction is far different from that of the herein claimed invention, in that Komoto lacks the feature in which a recess or hole is provided on a top surface of the base at the position under the bottom surface of the light emitting diode element into which the adhesive is filled. Therefore, it is respectfully submitted that the present invention is far different from that disclosed by Komoto in construction, function, and effect.

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Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isokawa et al. in view of Yasui. Askew et al. are said to disclose a light emitting device comprising a substrate, LED chip, package, first and second terminal electrodes, and bonding agent. A hole between the bonding electrodes contains the bonding agent. The vertical edges of the terminal electrodes are said to serve as a dam to prevent the bonding agent from spreading out and maintain the bonding agent of a uniform thickness. The Examiner concedes that Askew et al. do not disclose that the bonding agent is fluorescent. Yasui is said to disclose a semiconductor device in which the adhesive contains a fluorescent agent.

This rejection is respectfully traversed. It is clear from Figure 1 of Askew et al. that the electrodes cannot act as a dam for the bonding agent, because the electrodes do not completely encircle the adhesive layer. Therefore, the structure of the present invention is not suggested or taught by Askew et al., and Yasui adds nothing because Yasui merely teaches that a fluorescent material can be included in the adhesive.

In view of the above, it is respectfully submitted that the claims are now in condition for

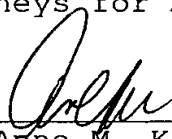
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allowance, and favorable action thereon is earnestly
solicited.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Applicant(s)

By


Anne M. Kornbau

Registration No. 25,884

Telephone No.: (202) 628-5197

Facsimile No.: (202) 737-3528

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